

# *Passiflora loefgrenii* (Passifloraceae), a New Species in Subgenus *Passiflora* from the Brazilian Atlantic Rainforest

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**ABSTRACT.** A new species of *Passiflora* from the Brazilian Atlantic rainforest in the state of São Paulo is described and illustrated. *Passiflora loefgrenii* is placed in subgenus *Passiflora* "series" *Lobatae*. It is vegetatively similar to *P. amethystina* Mikan and *P. eichleriana* Masters, the three species occurring sympatrically. *Passiflora loefgrenii* differs from these species primarily by flower character. At the type locality *Passiflora loefgrenii* is pollinated by hermit hummingbirds and large bees.

The Passifloraceae were last studied comprehensively by Killip (1938). In his work, 45 species in subgenus *Passiflora* (subg. "*Granadilla*" sensu Killip) were described as occurring in Brazil. The subgenus *Passiflora* usually has large and verticillate floral bracts, showy flowers with campanulate or short-tubular calyx tubes, and coronas with at least three series of appendages. In recent studies, six new species of subgenus *Passiflora* have been described from Brazil (Sacco, 1966a, b, 1968, 1973, 1980).

Fieldwork at "Fazenda Intervalles" (now Intervalles State Park) in 1991 yielded the new species described here. Intervalles State Park (Fig. 1) is a 46,000-ha reserve in the state of São Paulo, Brazil, and, along with Carlos Botelho, Alto do Ribeira, and Xitué reserves, comprises more than 130,000 ha of continuous Atlantic rainforest in the Serra de Paranapiacaba. While examining *Passiflora* collections at the SP herbarium, I found a specimen collected in 1894 by Albert Loefgren on the margins of the Ribeira River, situated in the lowlands in the vicinity of the reserves cited above. Nowadays the Ribeira region is mostly occupied by extensive plantations. This plant, identified by H. Harms as *P. amethystina*, belongs in fact to the new species collected in 1991 at Intervalles.

The new species is dedicated to Albert Loefgren, the Swedish naturalist who worked in Brazil for 44 years and first collected this plant.

***Passiflora loefgrenii* Vitta, sp. nov.** TYPE: Brazil. São Paulo: Guapiara, Fazenda Intervalles, estrada Sede-Carmo, na beira da mata, Sep. 1991, F. A. Vitta & L. C. Passos 010 (holotype, SPF; isotypes, K, UEC). Figure 2.

*Passiflora* ad "series" *Lobatae* pertinens; stipulae reniformes; glandulis nectariferis stipitatis sex per paria dispositis instructus; lamina trilobata, lobis ovatis; pedunculi 11–20 cm longi; bracteae ellipticae, verticillatae; flores speciosi 9–11 cm diam.; hypanthium campanulatum; sepala extus vinosa, intus purpurea, manifeste

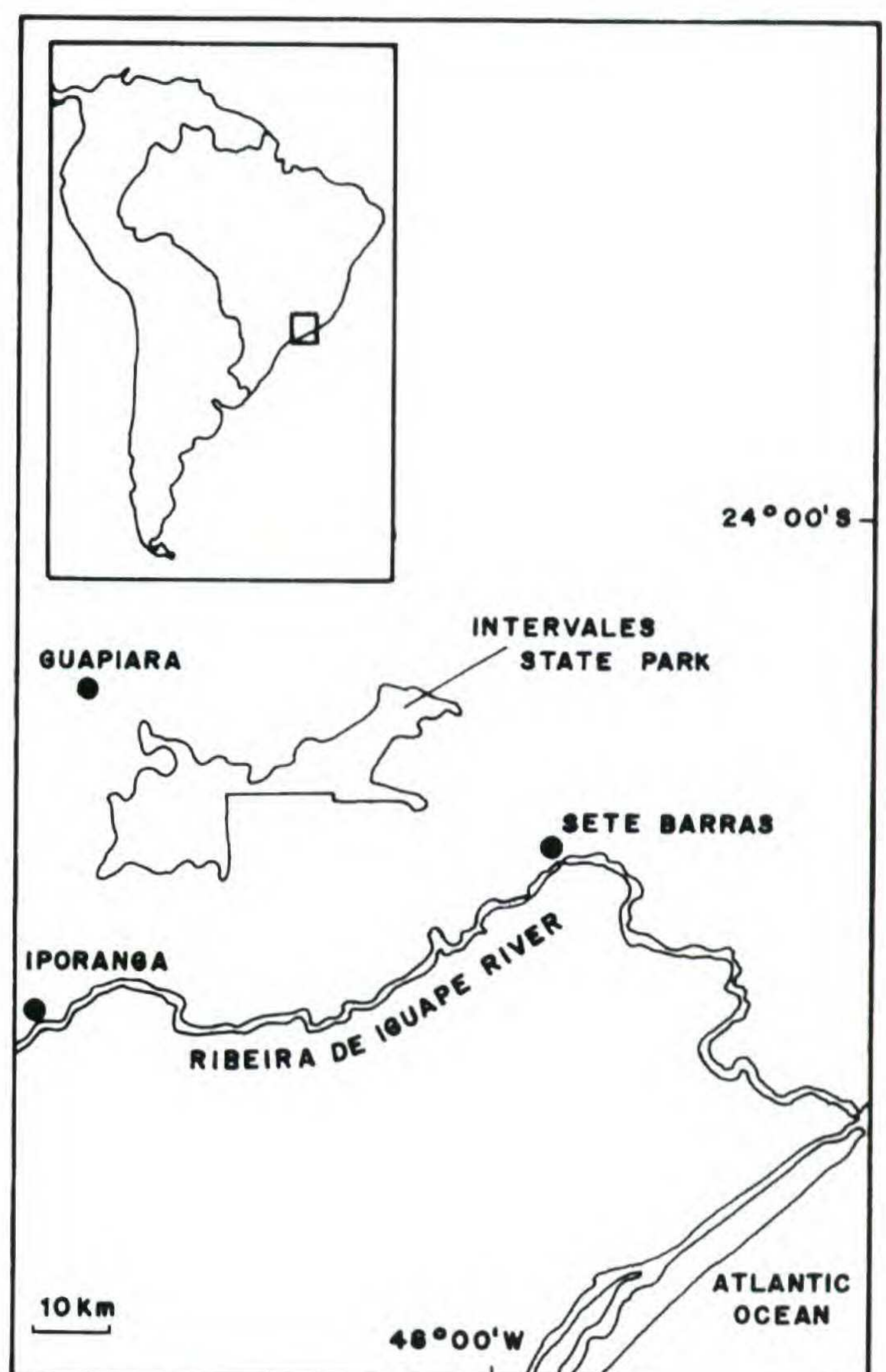


Figure 1. The Ribeira region in São Paulo showing Intervalles State Park, which is situated at the Serra de Paranapiacaba.

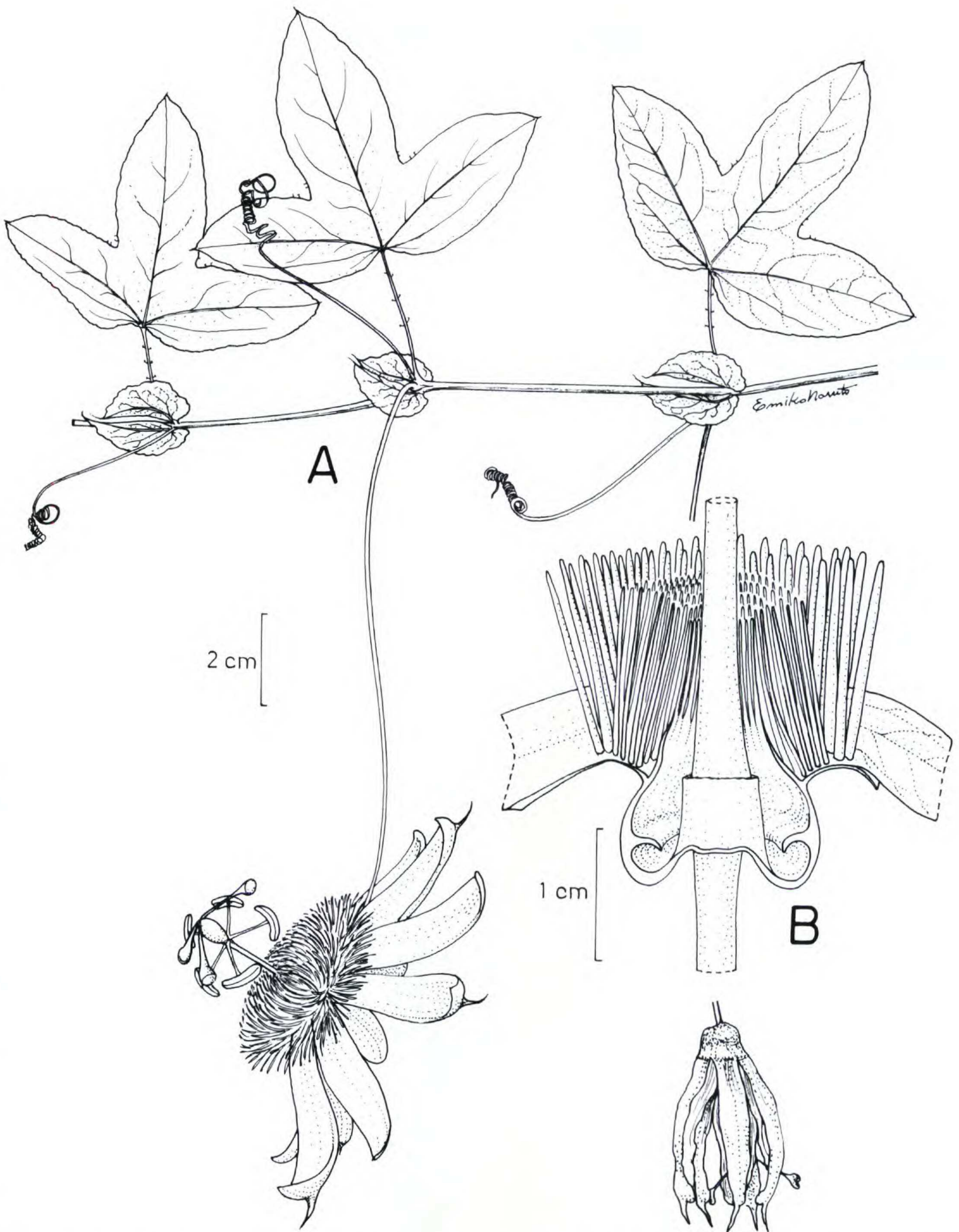


Figure 2. *Passiflora loefgrenii* Vitta. —A. Flowering shoot. —B. Longitudinal section of flower base. Drawn from Vitta & Passos 010 (holotype).

carinato-aristata; petala purpurea; coronae filamenta 6–7 seriata, seriebus externibus duo 1.7–2.0 cm longis, internibus 1.0–1.2 cm longis, operculum modice plicatum, erectum; gynophorum 3–3.5 cm longum; ovarium glaucum, glabrum.

Vine. Plant glabrous throughout. Stems striate, terete. Stipules reniform, (0.5–)1–1.5 cm long, (0.8–)2–3.5 cm wide, glandular serrate at base, apiculate. Petioles (2–)3–7 cm long, with 3 pairs of

stipitate, subopposite nectaries 1–2 mm long. Leaf blades 3-lobed to ca.  $\frac{1}{3}$  their length, (5–)7–9.5 cm long, (5.5–)8–14 cm wide, subpeltate, cordate at base, with 2–4 stipitate nectaries at each lobe sinus; leaf lobes ovate, mucronate, lateral ones (2.5–)3.5–5 cm long, (1.3–)2.5–4 cm wide, divergent from mid lobe ca.  $75^{\circ}$ – $90^{\circ}$ , this (3–)5–6 cm long, (1.2–)2.5–4.5 cm wide. Peduncles solitary, 11–20 cm long. Bracts 3, verticillate, free to the base, elliptic, obscurely glandular-serrate at margins, acute at apices, 1–1.5 cm long, 0.5–0.9 cm wide, inserted 1–1.5 cm below flower base, deciduous. Flowers showy, 9–11 cm diam. Hypanthium campanulate, 1 cm long, 1.5 cm wide. Sepals thick, oblong-lanceolate, 4–5 cm long, 0.9–1.5 cm wide, wine-colored and glaucous on abaxial surface, bright purple on adaxial surface, carinate, with a prominent awn (0.4–)0.7–1 cm long. Petals oblong, rounded at apices, subequal to the sepals, bright purple. Coronal appendages violet, white at base, papillose, in 6–7 series, the 4–5 innermost filiform, 1–1.2 cm long, the 2 outermost thicker, 1.7–2 cm long. Operculum erect, 1.5 cm long, arising 0.5–0.7 cm from base of hypanthium, membranous to ca.  $\frac{1}{3}$  their length, slightly plicate. Nectar ring conspicuous, 0.3–0.4 cm below base of operculum, incurved and delimiting a nectar chamber. Limen surrounding the broadened base of gynophore, 0.3 cm above the floor of hypanthium. Trochlea absent. Gynophore 3–3.5 cm long, green, wine spotted. Filaments 0.8–1 cm long; anthers 0.8–1 cm long. Ovary ellipsoidal, 0.8–0.9 cm long, 0.4 cm wide, glaucous, glabrous. Fruits not seen.

*Passiflora loefgrenii* is restricted to the Ribeira River Basin, where it grows at edges of primary rainforest or along trails, climbing on shrubs or small trees.

*Passiflora loefgrenii* is referred to “series” *Lobatae* (sensu Killip) on account of the foliaceous verticillate bracts. Vegetatively, it closely resembles *P. amethystina* and *P. eichleriana*, other species of “series” *Lobatae* that occur at Intervales State Park. Although the three can be easily identified when flowers are present, sterile specimens are difficult to separate. *Passiflora loefgrenii* differs remarkably from these species by having long hanging peduncles and large purple flowers. *Passiflora amethystina* and *P. eichleriana* have, respectively, bluish purple and white flowers with much shorter erect peduncles. While *P. loefgrenii* has the series of coronal appendages of similar size densely disposed

around the gynophore, the two other species have the outer series of appendages subequal to the petals and radially disposed over them, and the inner series is much shorter.

At Intervales State Park the flowering period of *Passiflora loefgrenii* extends from July to October. The time of flower opening and the behavior of the styles and anthers may vary according to temperature, and the flowers are visited both by hummingbirds and bees. *Passiflora loefgrenii* flowers open from 0900 to 1300h, and in the first hours of anthesis the stigmas and anthers are radially disposed, facing outward (cf. Janzen, 1968). During this phase, the hermit hummingbirds *Phaethornis eurynome* and *P. squalidus* frequently visit and pollinate the flowers, but bees do not contact the stigma and anthers. Later the style and anthers curve downward facing the corona. During this phase, carpenter bees (*Xylocopa* sp.) pollinate the flowers (L. C. Passos & F. A. Vitta, unpublished data). Thus, *Passiflora loefgrenii* benefits from both hummingbird and bee pollination.

*Paratypes.* BRAZIL. **São Paulo:** Entre Yporanga e Juru-Mirim, às margens do Rio Ribeira, 29.X.1894 (fl), *Loefgren & Edwall s.n.* (SP 10635); Eldorado, Parque Estadual de Jacupiranga, Núcleo Caverna do Diabo, Trilha entre a Cachoeira do Araçá e área conhecida como “descampado,” 03. IX.1995 (fl), *V.C. Souza 9007* (ESA, SP).

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